

Eliminating Racial Disparities in Colorectal Cancer in the Real World: It Took a Village

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Colorectal cancer (CRC) is the third most common cancer in the United States, with more than 102,000 new patients diagnosed per year.¹ It is, however, one of the few cancers that is highly preventable through the use of routine screening,² which can also prevent death resulting from CRC.^{3,4} CRC is also one cancer that continues to demonstrate widening incidence and survival disparities between whites and African Americans.^{1,5} Although the reasons for these disparities are multifactorial, advanced stage at diagnosis may explain up to 50% of the survival disparity.⁶

This reality is not unique to CRC. Those who are poor, underserved, or minorities are more likely to get cancer and die as a result of it than those who are rich or white. This is a fact, and it is the current reality of cancer care in the United States, as documented in thousands of peer-reviewed articles, including the focus of an Institute of Medicine report.^{6a}

The shame for CRC is that the higher incidence rates and advanced stage of diagnosis are likely affected by differences in screening rates between whites and racial and ethnic minority populations. Multiple studies have documented lower rates of up-to-date screening among minority patients as well as lower rates of screening with colonoscopy.⁷⁻¹¹ Other studies have also found lower rates of follow-up for abnormalities detected on screening among minorities.¹² Lack of insurance and usual sources of care certainly contribute to these disparities, but even when screening is universally provided, such as in the Medicare program, screening rates and follow-up after abnormal findings are still lower among African Americans compared with whites.^{7,13,14}

Several randomized trials have demonstrated that provision of CRC screening combined with outreach efforts can significantly increase CRC screening rates among minority populations.¹⁵⁻¹⁹ Moreover, patient navigation can increase the proportion of patients who receive appropriate and timely follow-up for abnormalities and facilitate the timely start of treatment.²⁰⁻²²

In *Journal of Clinical Oncology*, Robbins et al²³ reported on a study that identified disparities in CRC mortality rates among African American patients with late-stage disease. In an editorial, Paskett²⁴ suggested three steps to reduce CRC disparities: one, increase CRC

screening rates among minorities; two, target quality treatment, including both timely resolution of abnormal findings and initiation and completion of therapies; and three, use patient navigation to promote access to screening and proper care. Unbeknownst to Robbins et al or Paskett, just such an experiment was under way in the state of Delaware, incorporating these three steps. In this brief report, we demonstrate what can happen when the entire health care community of a state is mobilized toward a goal: eliminating health disparities in CRC.

Delaware Cancer Consortium

Delaware Governor Ruth Ann Minner established the Delaware Cancer Advisory Council in 2001 to develop a statewide cancer control program. The April 2002 report "Turning Commitment Into Action" recommended a limited number of achievable deliverables to reduce the high rates of cancer incidence and mortality in Delaware.²⁵ The Delaware State Legislature and Governor Minner accepted the recommendations and fully funded the cancer control program in 2003 under the direction of the Delaware Cancer Consortium. Three key elements of the program included a CRC screening program, a cancer treatment program providing for the uninsured, and an emphasis on African American cancer disparity reduction.

The CRC screening program promotes colonoscopy as the preferred screening modality and provides reimbursement starting in 2002 for any uninsured Delaware resident up to 250% of the federal poverty level. Other Delawareans are eligible for coverage through Medicaid, Medicare, and commercial insurance. A cancer screening nurse navigator system was deployed in 2004, providing a nurse navigator and care coordinator at each of the five acute care hospital sites and physician communities in the state. These individuals recruit both insured and uninsured patients for cancer screening and coordination of care. This program provided more than 10,000 navigations and 5,000 CRC screenings through 2011.²⁶

The Delaware Cancer Treatment Program was established in 2004 and covers the costs of cancer care for 2 years for the uninsured who are newly diagnosed through this mechanism if they have a household income of up to 650% of the federal poverty level. Special programs to reach the African American community were initiated,

with locally tailored programs designed by the site nurse navigators and statewide by the consortium, using partnerships with underserved community organizations and targeted marketing campaigns, leading to individual navigation by the nurse coordinators. These programs, combined with existing insurance coverage, can provide Delawareans with universal CRC screening and treatment. The outcomes measured to determine success of the program from 2002 to 2009 included: CRC screening rates by race, stage at diagnosis by race, CRC incidence by race, and CRC mortality rates by race. These data were obtained from the Delaware Screening for Life Program, the Delaware-specific Behavioral Risk Factor Surveillance System, and the Delaware Cancer Registry.²⁶⁻²⁸

Results

CRC screening rates for all Delawareans age ≥ 50 years increased from 57% in 2002 to 74% in 2009 (Table 1). Screening rates for African Americans rose from 48% to equal the rate among whites of 74% during the same time period.²⁷ Over 90% of the screenings were by colonoscopy.²⁷ The percent of patients with CRC diagnosed at advanced and regional stages among African Americans declined from 79% to 40%, and the percent diagnosed at local stage increased from 16% to 50% from 2001 to 2009 (Appendix Fig A1, online only; $P < .001$).²⁸ Incidence rates per 100,000 declined from 67 and 58 for African Americans and whites, respectively, in 2002 to 45 for both in 2009 ($P < .001$; Table 1; Appendix Fig A2, online only).²⁸ The mortality rate declined by 42% for African Americans, resulting in a rate almost equal to that among whites in 2009 ($P < .001$ for blacks; $P = .002$ for whites); however, a survival disparity persisted (Table 1; Appendix Fig A3, online only).²⁸ These data demonstrate that the disparities in CRC screening, incidence, and advanced stage of disease have been eliminated and the mortality rate difference is declining between whites and African Americans in Delaware.

Discussion

For all of the discussion about health care disparities, it sometimes seems that it has been so extensively documented that we have become numb to its implications or decided that it is too complex to fix. That there are complexities and nuances we do not deny, but the State of Delaware has shown us that if we have the will, there is a way.

Delaware created a comprehensive statewide CRC screening program that included coverage for screening and treatment, patient

navigation for screening and care coordination, and case management. By doing these common-sense things, we accomplished the following with respect to CRC health disparities from 2002 to 2009: elimination of screening disparities, equalization of incidence rates, reduction in the percentage of African Americans with regional and distant disease from 79% to 40%, and most importantly a near elimination of mortality differences.

To put this in perspective, if we could do this across the United States, 4,200 fewer African Americans would get CRC each year, and 2,700 fewer would die as a result of it. If a drug were found that accomplished this in a subset of our patients with cancer, the system would easily be asked to pay \$5,000 to \$10,000 per month for it, if not more. This comprehensive public health solution is not easily funded by many state or federal agencies. Reasons could include lack of responsibility for oversight or financial commitment or lack of interest. What these agencies need to recognize is the business case for this solution. CRC incidence and mortality cost \$14 billion²⁹ per year in medical expenses and years of productivity (ie, taxable income). The Delaware CRC screening program costs \$1 million annually (\$1.15 per resident). The increased CRC screening in Delaware, which includes screening through the Delaware Cancer Consortium program and private insurance, saves \$8.5 million annually from reduced incidence of cancer and stage shift to cancers requiring less aggressive therapy. This annual savings more than offsets the \$6 million annual cost of the cancer treatment program that provides universal treatment for all varieties of cancer.

This is not to argue that this is the complete solution to eliminating CRC cancer disparities. We know that factors such as diet, exercise, obesity, vitamin D, and availability of and access to local endoscopy services are also likely contributing to these differences between African Americans and whites and need to be addressed.^{5,7,30} We also acknowledge that even by equalizing stage of diagnosis, CRC mortality disparities will persist for a multitude of reasons, including but not limited to differences in extent and quality of treatment, competing comorbidities, and appropriate survivorship follow-up after treatment completion.^{23,31-33} However, if we can replicate the Delaware model throughout the country, we can focus our attention and resources on these remaining issues.

The federalist model operates partly on the premise that the states are the laboratories for the rest of the country. This model is only helpful if we take the lessons from those laboratories to our own states and work with

Table 1. Trends in CRC Screening, Incidence, and Mortality Rates by Race in Delaware: 2001 and 2009

Trend	2001*		2009		Change From 2001 to 2009 (%)	
	Black	White	Black	White	Black	White
Ever had screening colonoscopy, %	47.8	58.0	73.5	74.7	54	29
CRC incidence rate per 100,000†	66.9	58.2	44.3	43.2	-34	-26
Total No. of cases‡	205	1,206	235	1,149		
CRC mortality rate per 100,000†	31.2	19.5	18.0	16.9	-42	-13
Total No. of cases§	88	398	75	420		

Data adapted.²⁸

Abbreviation: CRC, colorectal cancer.

*Program started in 2002.

†3-year average, age adjusted.

‡Black and white differences in incidence significant at $P < .001$.

§Black differences in mortality significant at $P < .001$; white, $P = .002$.

determined effort to fit them into our particular populations. Delaware has nicely laid out the model. What remains is our determined effort to change policy and implement this type of comprehensive approach to CRC and other preventable, screenable, and treatable cancers.

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Appendix

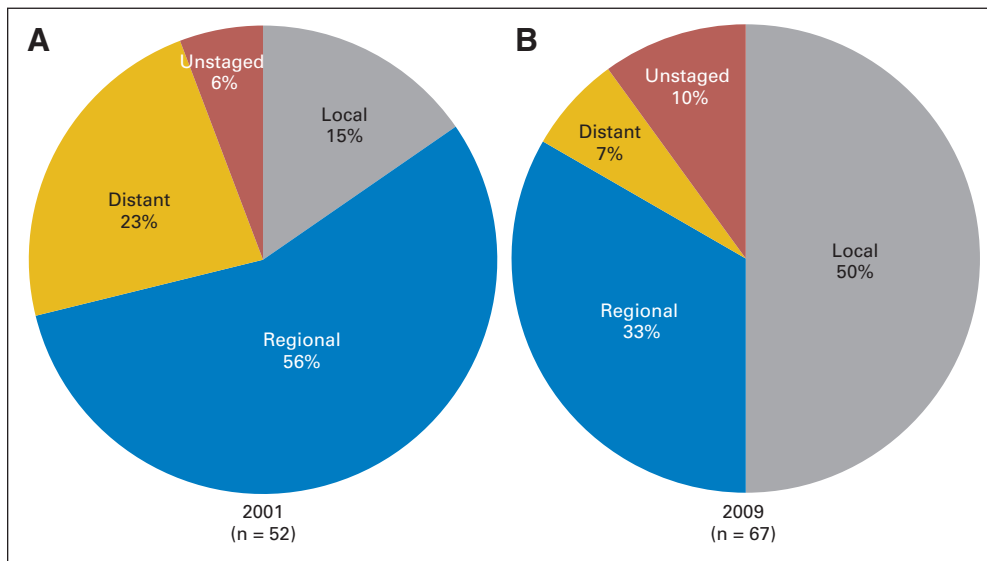


Fig 1. Colorectal cancer by stage of diagnosis among African Americans in Delaware (A) 2001 and (B) 2009.

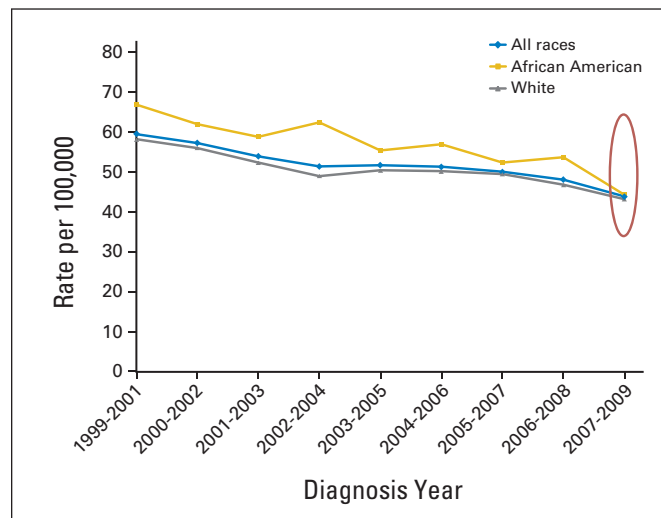


Fig 2. Age-adjusted colorectal cancer incidence rates (rolling 3-year averages) by race in Delaware from 1999 to 2009.

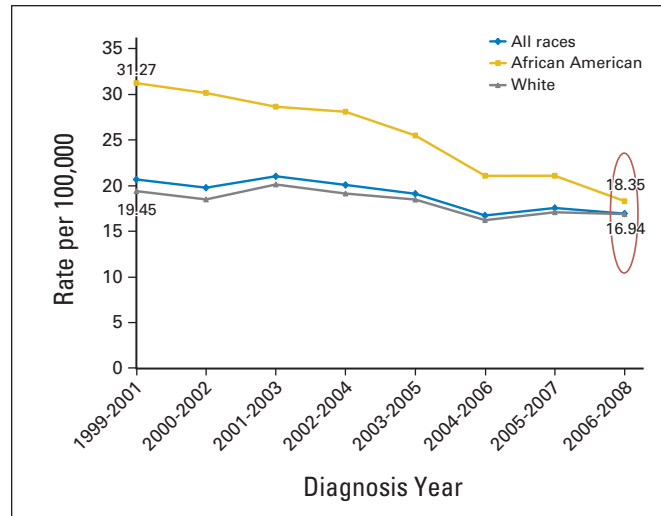


Fig 3. Age-adjusted colorectal cancer mortality rates (rolling 3-year averages) by race in Delaware from 1999 to 2009.